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DATA PAPER

Van Giffen's Dogs: Cranial Osteometry of Iron Age to Medieval Period Dogs from the Northern Netherlands

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This paper presents biometric data from a collection of 488 dogs skulls originating from 58 (archaeological) sites in the northern Netherlands dating from the Iron Age to the Medieval Period. The crania were originally collected and documented in the early 20th century by Prof. Albert Egges van Giffen, one of the pioneers of Dutch archaeology and archaeozoology. The 'De honden van Van Giffen' project has transcribed, translated and digitized the original handwritten records and tables, supplementing the information with new photographs of a selection of the specimens, and made the dataset openly accessible for researchers worldwide on easy.dans.knaw.nl. This dataset is an unparalleled treasure trove of canid osteometric data with sustainable reuse potential for research into dog domestication, the evolution of dog breeds, and cranial variability in canids.

Keywords: *Canis familiaris*; Canidae; dog; biometrics; zooarchaeology; animal bone; the Netherlands; terpen; Van Giffen legacy data

Funding statement: Making the data digitally available in an open access environment was funded by the Koninklijke Nederlandse Academie van Wetenschappen (KNAW) via Data Archiving and Network Services (DANS) as a Kleine Data Projecten (KDP) grant. The original data and facilities for carrying out the project were provided by the Groningen Institute of Archaeology of the University of Groningen.

(1) Overview

Context

This data was collected by Prof. Albert Egges Van Giffen in the context of his archaeological research into the faunal assemblages of the terp (artificial dwelling mound) region of the northern Netherlands (present-day provinces of Friesland and Groningen) (**Figure 1**), as well as the domestication of dogs. His findings about the wild fauna of this region were published in 1913 in his book 'Die Fauna der Wurten' [1], which he subtitled 'Part I', because he was planning to publish a second book about the domestic animals of this region. As part of this undertaking, he collected a large number of dog skulls and mandibles from the terps and studied them osteometrically, using measurements that are still in use as standard measurements today [2–3]. However, he never managed to publish his results.

In addition to the data on (domesticated) terp canids, Van Giffen collected a large amount of osteometric data on canids from other contexts, including Danish shellmiddens (*kjökkenmödinger*), Swiss lake dwellings (*Pfahlbautensiedlungen*), and prehistoric sites from Germany, as well as data on wild and domesticated canids like jackals, wolves, modern domesticated breeds and dogs from Africa. Among his paperwork there is a rough draft of the start of an article titled 'Die Hunde der Wurten'. This article starts with: *"Die Hunde der Wurten und ihre Beziehungen zu den rezenten, praehistorischen und angeblich diluvialen Hunden zu den nächst verwandten Caniden"* (The dogs of the terpen and their relationships to recent, prehistoric and apparently diluvial (modern: Pleistocene) dogs to their nearest kin). This implies that it was probably his intention to bring together all the data he gathered on canids and write a comprehensive publication about his findings. As this never got finished, the data was archived by the Groningen Institute of Archaeology (GIA), formerly the Biologisch-Archeologisch Instituut founded in 1920 by Van Giffen himself. In total Van Giffen collected osteometric data from 488 specimens, origination from 58 different sites situated in the terpen area in the Nothern Netherlands. 308 out of the 488 specimens studied by Van Giffen are extant in the collections housed by the University of Groningen (RUG).

Spatial coverage

Northern Netherlands, provinces of Friesland and Groningen (**Figure 1**):

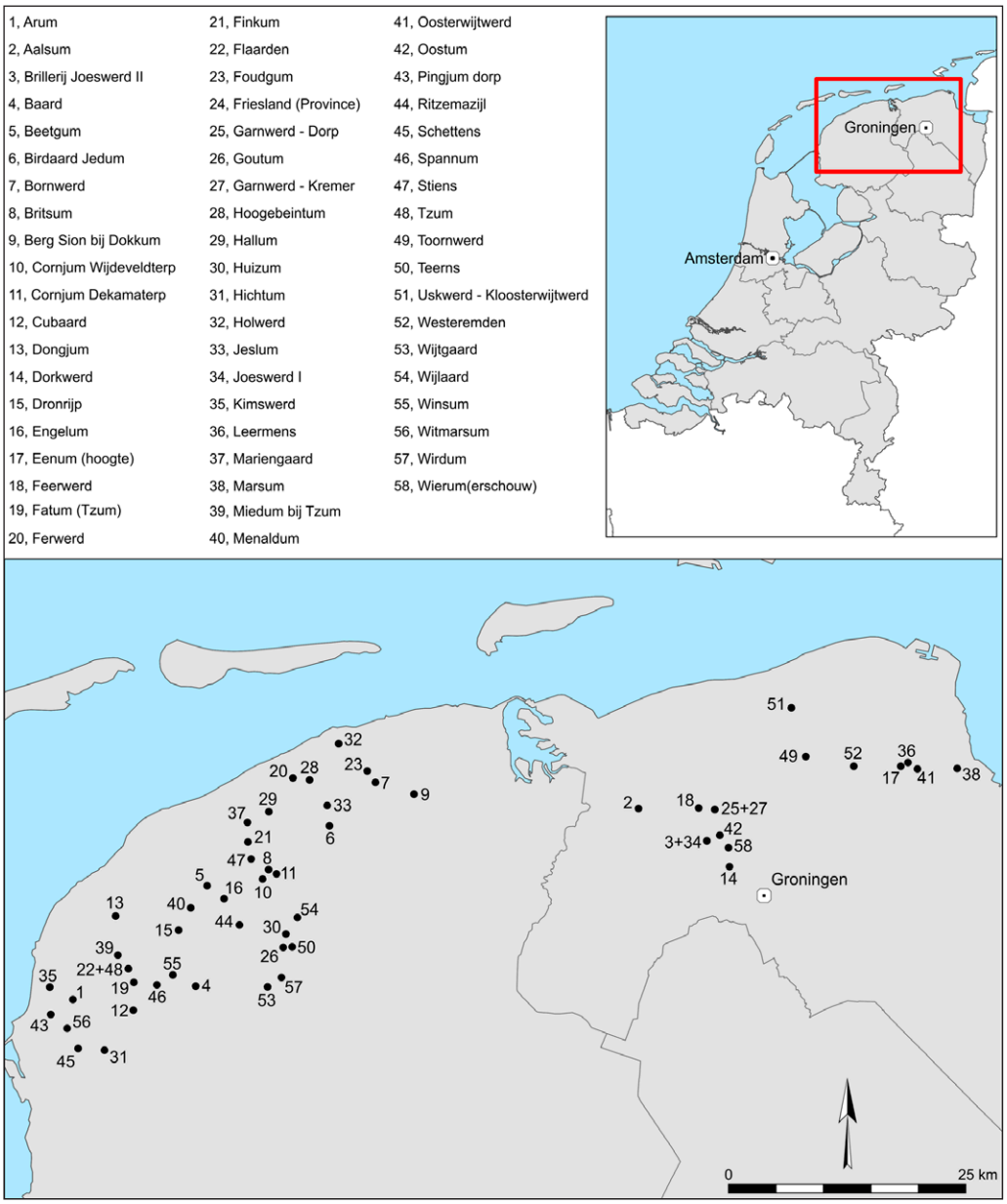

Figure 1: Map of site locations (E. Bolhuis – RUG/GIA).

Northern boundary: +53.468N
Southern boundary: +52.818N
Eastern boundary: +7.218E
Western boundary: +5.372W

Temporal coverage

The dating of the terp sites from which the skulls were gathered range in date from Late Iron Age (Dutch periodization [4]: 250 BC – 13 AD) to Medieval (up to 1499 AD) (**Table 1**). In the database the dating based on available archaeological data is listed, thus the fact that some of the terps are still currently inhabited has not been incorporated in the date range listed in the database.

(2) Methods

The digital dataset was created by transcribing, translating (from German) when necessary, and digitizing the original handwritten records from the GIA archive, by inputting the data into a database and scanning the analogue documentation.

Steps

Van Giffen's handwritten records were extracted from the archives and assessed. Most of the data exist in duplicate: the original rough copy notes of the data, and the processed dataset. The documentation included the keys needed to interpret the osteometric data and link the measurements taken onthe skulls. The metric data and site information was entered into a Microsoft Access database and the sheets with the processed data were scanned. Extant specimens in the RUG collections were matched with the specimen numbers and cross-checked with the osteometric data for integrity.

The dataset contains several tables presenting basic metric data, indices, and measurement metadata, as well as tables with background information about the sites such

Table 1: Dating Dutch archaeological periodization for the relevant periods [4].

Period	Dating
Recent	**>1950 AD**
Modern Era (Nieuwe Tijd)	**1500–1949 AD**
Modern Era C	*1850–1949 AD*
Modern Era B	*1650–1849 AD*
Modern Era A	*1500–1649 AD*
Medieval Period	**450–1499 AD**
Late Medieval Period	**1050–1499 AD**
Late Medieval Period A	*1250–1499 AD*
Late Medieval Period B	*1050–1249 AD*
Early Medieval Period	**450–1049 AD**
Early Medieval Period D	*900–1049 AD*
Early Medieval Period C	*725–899 AD*
Early Medieval Period B	*525–724 AD*
Early Medieval Period A	*450–525 AD*
Roman Age	**12 BC–449 AD**
Late Roman Age	**270–449 AD**
Late Roman Age B	*350–449 AD*
Late Roman Age A	*270–349 AD*
Middle Roman Age	**70–269 AD**
Middle Roman Age B	*150–269 AD*
Middle Roman Age A	*70–149 AD*
Early Roman Age	**12 BC–69 AD**
Early Roman Age B	*25–69 AD*
Early Roman Age A	*12 BC–24 AD*
Iron Age	**800–13 BC**
Late Iron Age	*250–13 BC*
Middle Iron Age	*500–251 BC*
Early Iron Age	*800–501 BC*

as site names and site coordinates (in latitude/longitude). Since the exact find location (i.e. precise archaeological context) of the specimens is not documented, the coordinates used are the central coordinates of the respective site (if an excavation area is documented) or the (former) terp body.

A selection of the skulls that were present in the collection of the Zooarchaeologicial Reference Collection of the GIA [5] and the depot of the University Museum were photographed using a SONY ILCE-7M2 camera. The positioning of the skulls in the photographs has been based on the measurement key drawings used by Van Giffen (**Figure 2**).

Sampling strategy

The dog skulls were found during van Giffen's private excavations and excavations through the University of Groningen, as well as during large-scale removal of the terp soils for peat gaining. The current project made no further sub-sampling of the extant data or physical specimens.

Quality Control

The measurement key used by Van Giffen was compared to more recently developed standard measurement keys [2–3]. The interpretation of the measurement key was verified through cross-checking the recorded measurements on skulls which, by means of their index number could be connected to the respective dataset.

Van Giffen recorded the sites only by name, but as they are all terps, they can be pinpointed topographically fairly accurately. For some of the finds he recorded the stratigraphic layer. These are the skulls that were retrieved during official excavations, or the removing of the terp soil under supervision of Van Giffen or one of his assistants. In the case of stray finds that can only be attributed to a certain terp, the date range can be very broad, as it is not possible to determine from which layer the specimen originates.

Constraints

The constraints of this data set lay in the fact that it consists solely of skulls, with or without mandibles, and in the fact that it is not always possible to deduce the exact archaeological period the measured specimen originates from. Furthermore, while the majority of the skulls are physically extant (309 out of 488), part of the remains are currently unaccounted for (179 out of 488).

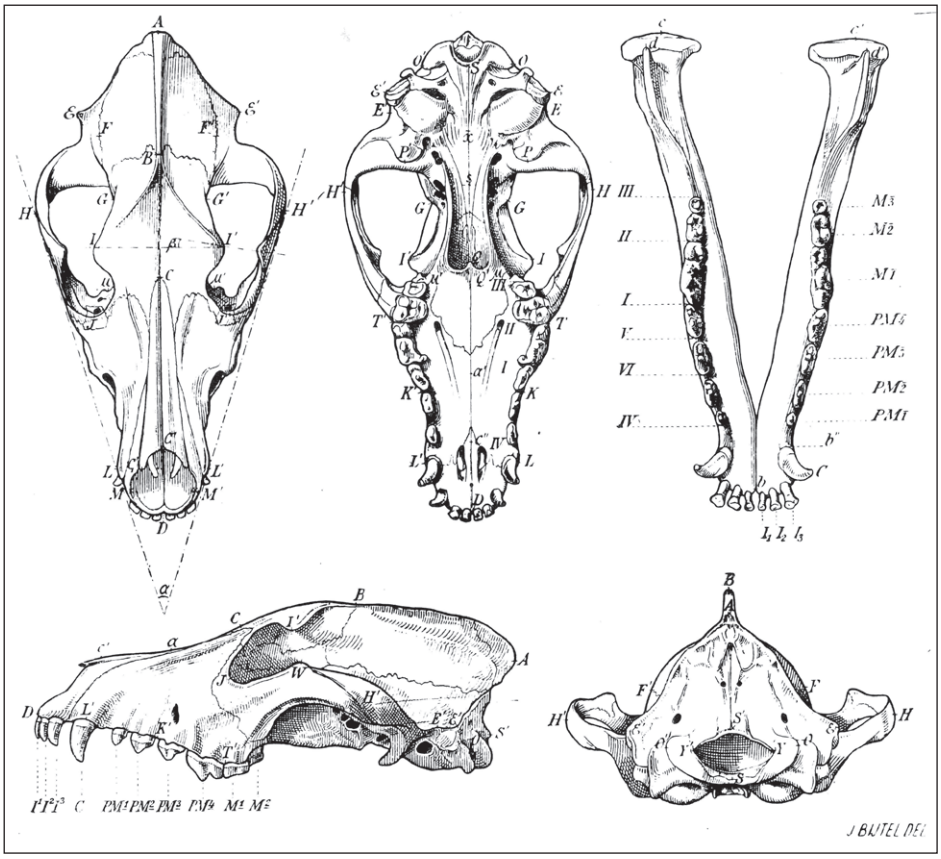

Figure 2: Van Giffen measurement key drawing (J. Bijtel).

(3) Dataset description

Object name

Project name:

De honden van Van Giffen / Van Giffen's dogs

Object name:

VanGiffenDogs_Dataset_Manual – a PDF document describing the dataset

VanGiffenDogs_Metadata – folder containing the measurement keys, lists with explanations of the measurements and used terminology

VanGiffenDogs_MetricDataDogs – an Access database containing several tables containing the osteometric data (measurements, indices, calculations)

VanGiffenDogs_Scans – folder with the scans of the original datasheets, index books and measurement keys

VanGiffenDogs_SkullPhotographs – folder with photographs of a selection of skulls

Data type

Primary data, processed data

Format names and versions

ACCDB, CSV, JPEG

Creation dates

The original records were created in the early 20th century (ca. 1900–1920), the digitalization of the data, and therefore the creation of the deposited files was undertaken in 2017.

Dataset Creators

The original data was collected and recorded by Professor A.E. van Giffen (BAI/RUG). The digital records were created by E.E. Scheele (Research Assistant Zooarchaeology RUG/GIA), D. Fennema (Freelance Photographer) made the photographic records of the selected specimens.

Language

Mainly numerical, original keys and text have been translated from German to English for the digital dataset.

License

BY-NC-SA

Groningen Institute of Archaeology
Groningen University, the Netherlands

Repository location

The dataset is accessible through the DANS-website (free log-in is required) [6].

DANS: https://easy.dans.knaw.nl/ui/datasets/id/easy-dataset:75067.

Publication date

2017-12-12

(4) Reuse potential

Cranial osteomorphology is a crucial proxy to understand past dogs and wolves [7–9]. This dataset can be used by zooarchaeologists as a reference metapopulation from the temperate northern latitudes of western Eurasia dating roughly between 500 BC to 1500 AD, for research into dog domestication, development of dog breeds in different regions and through time. The metric data can also be of interest to researchers from the fields of biology and veterinary medicine with interest in variation in canid skull typology and their comparison with historic populations [10–12]. The dataset can be expanded with data from other datasets or data collected with the intent of extending upon this dataset. The fact that the measurements taken are still used in current research (see for example von den Driesch 1976) makes the dataset easily compatible with data from more recent assemblages from the field of zooarchaeology and recent metapopulations with more accurate metadata [13]. In the future, it should be possible to apply molecular methods on the extant specimens and couple the results with this osteometric dataset. Finally, the dataset can be used to teach students how to re-use osteometric data to reconstruct cranial morphology.

Acknowledgements

Hereby we would like to thank K. van der Ploeg (Documentalist – RUG/GIA) for retrieving the original documentation from the archives and making us aware of its existence, H.C. Küchelmann (Research Assistant Zooarchaeology RUG/GIA) for his input while translating the measurement points and keys, R. ter Sluis (Curator – University Museum Groningen) for his help in retrieving the physical skulls from the depot collection of the University Museum, and D. Raemaekers for his input during project application.

Competing Interests

The authors have no competing interests to declare.

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